SM-6 Omni-directional Geophone

LOW FREQUENCY, CLOSE TOLERANCE GEOPHONE ELEMENT

→ Design adapted from popular Omni-directional geophone used extensively in industrial applications
→ Coil travel 4 mm peak to peak
→ High sensitivity version available (80V/m/s)
→ Rugged construction with precious-metal contacts
→ Design based on proven ION Sensor rotating coil family of geophones
→ 2 year limited warranty

The SM-6 Omni-directional geophone has been specially designed for non-gimballed 3C applications, in particular Ocean Bottom and Down-hole 4D/4C applications where high repeatability and reliability are key performance characteristics.

The Sensor Omni-directional geophone has the lowest (14 Hz) natural frequency in the seismic industry. This geophone will operate in any orientation, maintaining sufficient coil-to-case movement to provide a signal dynamic range comparable with the successful SM-24 geophone.

Small variations of the typical geophone response over the full 360 degrees rotation angle guarantee good vector fidelity.

A variety of ION Sensor enclosures can accommodate the SM-6, making the SM-6 Omni-directional geophone suitable for an extensive range of field applications.

### Specifications for: SM-6 14 Hz Omni-tilt Geophone

<table>
<thead>
<tr>
<th>Working position:</th>
<th>Omni-tilt</th>
<th>3500 Ω</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural frequency</td>
<td>14 Hz</td>
<td>14 Hz</td>
</tr>
<tr>
<td>Tolerance</td>
<td>± 7%</td>
<td>± 7%</td>
</tr>
<tr>
<td>Maximum tilt angle for specified Fn</td>
<td>360°</td>
<td>360°</td>
</tr>
<tr>
<td>Distortion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distortion with 0.7 in/s p.p. coil to case velocity</td>
<td>&lt;0.70%</td>
<td>&lt;0.70%</td>
</tr>
<tr>
<td>Distortion measurement frequency</td>
<td>14 Hz</td>
<td>14 Hz</td>
</tr>
<tr>
<td>Damping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open circuit</td>
<td>0.180</td>
<td>0.185</td>
</tr>
<tr>
<td>Tolerance</td>
<td>+10 / -5%</td>
<td>+10 / -5%</td>
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<tr>
<td></td>
<td>375 Ω</td>
</tr>
<tr>
<td></td>
<td>3500 Ω</td>
</tr>
</tbody>
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#### Damping
- **Open circuit**
  - 375 Ω: 0.180
  - 3500 Ω: 0.185
- **Tolerance**
  - +10 / -5%

#### Resistance
- **Standard coil**
  - 375 Ω: 375 Ω
  - 3500 Ω: 3500 Ω
- **Tolerance**
  - ± 5%

#### Sensitivity
- **Open circuit sensitivity**
  - 375 Ω: 28.8 V/m/s
  - 3500 Ω: 0.0 V/m/s
- **RtBoFn**
  - 5950 Ω Hz
  - 49931 Ω Hz
- **Typical Spurious frequency**
  - 59 Hz
  - 190 Hz
- **Moving mass**
  - 11.1 g
  - 10.2 g
- **Maximum coil excursion p.p.**
  - 0.5 mm
  - 0.5 mm

#### Physical Characteristics
- **Diameter**
  - 25.4 mm (1.0 in)
- **Height (including terminals)**
  - 36.0 mm (1.42 in)
- **Diagonal**
  - 42.5 mm (1.67 in)
- **Weight**
  - 81. g (2.85 oz)

#### Operating temperature range
- -40°C to 100°C (-40°F to 212°F)

### Limited warranty period*
**2 years**

(*) Warranty excludes damage caused by high voltage and physical damage to the element case. All parameters are specified at 20°C in the working position unless otherwise stated.

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**Geophone Response Curve & Phase Lag: SM-6 14 Hz 375 Ω Omni-tilt**

![Geophone Response Curve](image1.png)

![Geophone Phase Lag](image2.png)
Typical Response for Tilt Position: SM-6 14 Hz 375 Ω

Geophone Response Curve & Phase Lag: SM-6 14 Hz 3500 Ω Omni-tilt
**Typical Response for Tilt Position: SM-6 14 Hz 3500 Ω**

![Graphs showing typical response for Tilt Position](image)

**Ordering Information: SM-6 14 Hz Omni-tilt**

<table>
<thead>
<tr>
<th>Type</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM-6 OB 14 Hz 375</td>
<td>P/N 1006425</td>
</tr>
<tr>
<td>SM-6 OB 14 Hz 3k5</td>
<td>P/N 1006455</td>
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</table>

**About ION**

ION has been a technology leader for over 50 years with a strong history of innovation. Leveraging innovative technologies, ION creates value through data capture, analysis and optimization to enhance companies’ critical decision-making abilities and returns. Our offerings are focused on improving E&P decision-making, enhancing reservoir management and optimizing offshore operations.